TUGARINOV, A.I.; ZYKOV, S.I.; BIBIKOVA, Ye.V.

Determining the absolute age of sedementary rocks using the lead-uranum method. Geokhimiia no.3:266-283 Mr '63. (MIRA 16:9)

1. Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, U.S.S.R., Moscow.
(Lead-uranium dating)

BLUVSHTEYN, M.N.; TSIKOLIN, G.I.; ZYKOVA, Z.K.

Dynamic method of determining the elasticity modulus of refractories at high temperatures and the automatic control of testing. Ogneupory 28 no.1:13-17 '63. (MIRA 16:1)

1. Vsesoyuznyy institut ogneuporov.
(Refractory materials—Testing)
(Elasticity—Testing)
(Automatic control)

S/007/63/000/003/002/003

AUTHOR: Tugarinov, A. I., Zykov, S. I., Bibikova, Ye. V.

TITLE: On determining of absolute age of sedimentary formations by the lead-uranium method

PERIODICAL: Geokhimiya, no. 3, 1963, 266-283

TEXT: Article deals with problem of determining age of sediments in absence of authigenic uranium or thorium minerals therein, which would be useful if present. The lead-uranium method, in combination with authigenic uranium concentrations, has been used with good results. Uranium bearing sulfides and apatites, as well as micaceous segments of sandstones and conglomerates, have proved the most suitable materials.

Results of age determination by this method are reported for Pre-Cambrian sedimentary rocks of the Ukraine, the Kursk magnetic anomaly and the Karelian ASSR.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR (Institute of Geochemistry and Analytical Chemistry im. V. I. Vernadskiy, Academy of Sciences USSR), Moscow.

Card 1 of 1

STUPNIKOVA, N.I.; ZYKOV, S.I.; MINYEYEV, D.A.

Age of rocks of the Central and Southern Urals dated by the lead-isotope method. Geokhimiia no.7:572-582 '62. (MIRA 15:7)

1. Chair of Geochemistry of the Lomonosov Moscow State University.

(Ural Mountains—Geological time)
(Lead—Isotopes)

TUGARINOV, A.I.; ZYKOV, S.I.

Isotope composition of lead in ore deposits of the Caucasus and Central Asia. Biul.Kom.po opr.abs.vozr.geol.form. no.4: 66-76 '61. (MIRA 15:1)

(Caucasus--Ore deposits)
(Soviet Central Asia--Ore deposits)
(Lead--Isotopes)

ZHIROVA, V.V.; ZYKOV, S.I.; TUGARINOV, A.I.

Age of zircons of ancient formations in the Kola Peninsula.
Geokhimiia no.12:1043-1052 '61. (MIRA 15:3)

1. Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences U.S.S.R., Moscow.
(Kola Peninsula--Zircon) (Kola Peninsula--Geological time)

ZYKOV, S.I.; STUPNIKOVA, N.I.; PAVLENKO, A.S.; TUGARINOV, A.I.; ORLOVA, L.P.

Absolute age of intrusions in the eastern Tuva region and the Yenisey Range. Geokhimiia no.7:547-560 '61. (MIRA 14:6)

1. V.I.Vernadskiy Institute of Geochemistry and Analytical Chemistry, Academy of Sciences U.S.S.R., and Chair of Geochemistry M.V.Lomonosov State University, Moscow.
(Sangilen range--Rocks, Igneous) (Yenisey Ridge--Rocks, Igneous)
(Geological time)

GAMEYEV, I.G.; ZYKOV, S.I.

Old lead mineralization in central Kazakhstan. Sov. geol. 4 no.1: 138-141 Ja '61. (MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Kazakhstan--Lead ores)

VINOGRADOV, A.P.; TUGARINOV, A.I.; ZYKOV, S.I.; STUPNIKOVA, N.I.

Age of pegmatites of the Stanovoy complex. Geokhimiia no.5:383-391 '60. (MIRA 13:8)

1. Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo AN SSSR, Moskva i Kafedra geokhimii Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.
(Stanovoy Range—Pegmatites)
(Geological time)

VINOGRADOV, A.P.; TARASOV, L.S.; ZYKOV, S.I.

Isotopic composition of leads from pyrite deposits of the Urals. Geokhimiia no.6:475-489 '60. (MIRA 13:10)

1. Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo AN SSSR, Moskva.

(Ural Mountains--Lead--Isotopes)

VINOGRADOV, A.P.; TUGARINOV, A.I.; ZYKOV, S.I.; STUPNIKOVA, N.I.

Age of rocks of the Aldan Shield. Geokhimiia no.7:563-569 '60. (MIRA 13:11)

1. V.I.Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, U.S.S.R., Moscow, and Chair of Geochemistry of the M.V. Lomonosov Moscow State University.
(Aldan Plateau--Rocks--Ages)

VINOGRADOV, A.P.; TARASOV, L.S.; ZYKOV, S.I.

Isotopic composition of lead in ores of the Altai and Kazakhstan [with summary in English]. Geokhimiia no.1:3-22 '57.
(MIRA 12:3)

1.Vernadskiy Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, U.S.S.R., Moscow.
(Altai Territory--Lead--Isotopes)
(Kazakhstan--Lead--Isotopes)

KOMLEV, L.V.; DANILEVICH, S.I.; IVANOVA, K.S.; ZYKOV, S.I.; KUCHINA, G.N.; MIKHALEVSKAYA, A.D.; FILIPPOV, M.S.

On the age of some rare metal granite intrusions in Central Kazakhstan [with summary in English]. Geokhimiia no.8:647-656 '57. (MIRA 11:2)

1.Radiyevyy institut AN SSSR, Leningrad.
(Geology, Stratigraphic) (Kazakstan--Granite)
(Nuclear geophysics)

ZYKOV, S.I.; STUPNIKOVA, N.I.

Isotopic analysis of lead without preliminary preparation of the mineral. Geokhimiia no.5:430-434 '57. (MIRA 12:3)

1. Chair of Geochemistry, Geological Faculty of the Moscow State University bearing the name of M.V. Lomonosov.
(Lead--Analysis)

ZHIROV, K.K.; ZYKOV, S.I.

Isotopic composition of lead in some deposits of central Kazakhstan [with summary in English]. Geokhimiia no.1:76-81 '59. (MIRA 12:2)

1. Department of Geochemistry, M.V. Lomonosov Moscow State University.
(Kazakhstan--Lead--Isotopes)

MOOR, G.G.; ZYKOV, S.I.

Alkaline rocks in northern outskirts of the Siberian Platform and the isotopic composition of lead in them. Dokl. AN SSSR 124 no.1: 168 Ja '59. (MIRA 12:1)

1.Nauchno-issledovatel'skiy institut geologii Arktiki. Predstavleno akademikom D.S. Korzhinskim.
(Siberian Platform--Rocks, Igneous)
(Lead--Isotopes)

3(8)

AUTHORS: Vinogradov, A. P., Zykov, S. I., Tarasov, L. S. SOV/7-58-6-1/16

TITLE: Isotopic Composition of Lead Impurities in Ores and Minerals as an Indicator for the Determination of Their Genesis and Time of Formation (Izotopnyy sostav svintsa-primesi v rudakh i mineralakh kak pokazatel'ikh genezisa i vremeni obrazovaniya)

PERIODICAL: Geokhimiya, 1958, Nr 6, pp 515 - 523 (USSR)

ABSTRACT: Samples of Chalcopyrite, pyrite, pyrrhotine, sphalerite, galenite and ore samples of different composition were investigated, as well as quartz, scheelite, tungstenite and cassiterite. The isotopic ratio in lead was determined by a mass spectrograph (method according to Ref 4). The chemical and pyrochemical preparation for mass spectrographical analysis was made by Ye. B. Yevdokimova. The following samples were investigated: 27 from the Rudnyy Altay (Table 1), 9 from the Kalba-Narymskiy rayon (Table 2), 3 from the Gornyy Altay (Table 3), 7 from northern Central Siberia (Table 4) and 5 from the Kola peninsula. Some samples were put at the authors' disposal by: T. V. Zorova,

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Isotopic Composition of Lead Impurities in Ores and Minerals as an Indicator for the Determination of Their Genesis and Time of Formation

SOV/7-58-6-1/16

V. L. Barsukov (GEOKhI), O. M. Chirko, Mineralogicheskiy muzey imeni A. Ye. Fersmana AN SSSR (Mineralogical Museum imeni A. Ye. Fersman, AS USSR) and O. Ye. Yushko-Zakharova.

The tables and the third chapter contain a mineralogical classification and geological information on the investigated stages. The isotopic ratio in the mineralizations of Kalba and Gornyy Altay which is almost identical refer clearly to a genetic unity and contemporaneous formation. The Pechenga ores are probably Proterozoic, certainly not Caledonian. Cassiterite has an anomalous ratio of isotopes. It is due to inclusions of radioactive minerals, e.g. columbite. There are 5 tables and 11 references, 11 of which are Soviet.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva (Institute of Geochemistry and Analytical Chemistry imeni V.I. Vernadskiy, AS USSR, Moscow)

SUBMITTED: [illegible] 15, 1958

Card 2/2

3(8), 3(0)

AUTHORS: Zhirov, K. K., Zykov, S. I. SOV/7-59-1-1o/14

TITLE: On the Isotope Composition of Lead in Some Deposits of Central Kazakhstan (Ob izotopnom sostave svintsa nekotorykh mestorozhdeniy Tsentral'nogo Kazakhstana)

PERIODICAL: Geokhimiya, 1959, Nr 1, pp 76-81 (USSR)

ABSTRACT: The isotope conditions of lead in 17 samples of 15 deposits of Central Kazakhstan were determined (Table 1). Yu. A. Borshchevskiy and I. G. Ganeyev assisted in the taking of samples and also supplied some of them. The object of the analysis with the mass spectrometer MS-3 were the lead iodides and, in 3 samples, directly the galenite. Errors are less than 1%. The different deposits and geographical conditions, especially the Kuzhal deposit (Table 2) are discussed. It follows that the isotope composition in a series of samples from rare metal deposits agrees with those of manganese, and hydrothermal deposits. The polymetallic stage in deposits of rare metals is probably superposed and in genetic relation with ore-formation processes in lead-, lead-zinc-, and other deposits. Genetically related deposits and deposits situated relatively close to each other show differences in the isotope

Card 1/2

On the Isotope Composition of Lead in Some Deposits of Central Kazakhstan

composition. Most probably two generations of galenites exist in these regions. The authors appreciate the suggestions and help of A. A. Maksimov. There are 2 tables and 10 Soviet references.

ASSOCIATION: Kafedra geokhimii Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova
(Chair of Geochemistry, Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 13, 1958

3(0)

AUTHORS: Moor, G. G., Zykov, S. I.

SOV/20-124-1-48/69

TITLE: The Alkaline Rocks of the Northern Border of the Siberian Platform and the Isotopic Composition of the Lead in These Rocks (Shchelochnyye porody severnoy okrainy Sibirskoy platformy i izotopnyy sostav svintsa v nikh)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 1, pp 168-170 (USSR)

ABSTRACT: Along the lower course of the Kotuy and Maymecha Rivers a complex of ultrabasic and alkalic rocks has been found. The rocks of this complicated and multiphase complex are, in spite of the great diversity of mineral and chemical compositions, genetically related and originated from the same melt. This region can be selected as a special petrographic and magmatic province. With the intrusions in the same area are trap rocks of effusive and hypabyssal facies. The volcanic cycle during which the intrusions of the alkalic-ultrabasic complex were implaced took place from the end of the Upper Permian to the beginning of the Lower Jurassic. Foremost activity was in the Lower Triassic when the trap rocks were formed. Both types of magmatism are closely interrelated, both spacially and temporally.

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The question of the genetic relationship is not at present entirely answered. A few researchers (G. G. Moor, T. L. Gol'dburt and K. M. Shikhorina) consider that an original basalt magma produced the alkalic-ultrabasic rocks as well as the trap rocks. This explains the great diversity of the rock types. Other researchers (Yu. M. Sheynmann, Ye. L. Butakova) think that an ultrabasic magma was the common parent. Some light is brought to the matter by a comparison of the isotopic composition of lead from rocks of this complex. For this purpose galena from vein-like, melanocratic syenite from the Odikhincha intrusion (on the right bank of the Kotuy) was used. The isotopic composition (determined by S. I. Zykov) was as follows: $Pb^{206}/Pb^{204} = 17.98$; $Pb^{207}/Pb^{204} = 15.36$; $Pb^{208}/Pb^{204} = 37.65$. Noteworthy is the isotopic composition of lead from the alkalic rocks of the Kotuy River and the traps of the Siberian Platform (Table 1)(Refs 3, 4).

As seen from the preceding data, the isotopic compositions of the lead of the traps and of the alkalic rocks of the Kotuy River are very similar. Thus it can be concluded, with some reservations, that the trap and alkalic-ultrabasic rocks come from the same basalt magma. There are 1 table and 4 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut geologii Arktiki (Scientific Research Institute of Geology of the Arctic)

PRESENTED: July 23, 1958, by D. S. Korzhinskiy, Academician

SUBMITTED: July 22, 1958

ZYKOV, S.I.

ZHIROV, K.K.; ZYKOV, S.I.; ZHIROVA, V.V.; STUPNIKOVA, N.I.

The effect of hydrothermal changes on the radioactive mineral age determination. Geokhimiia no.8:657-665 '57. (MIRA 11:2)

1.Kafedra geokhimii geologicheskogo fakul'teta Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova i Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva.
(Nuclear geophysics)

ZYKOV, S. I.

Zykov, S. I., M..I. Stupnikova - The Determination of Isotope Contents of Small Quantities of Lead.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

Izv. Ak Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 Author Pekarskaya, T. B.

ZYKOV, S. I.

Zykov, S. I., Fedorova, V. A. - The Age Determination of Ukrainian Granitoids.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957.

Izv. Ak Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 author Pekarskaya, T. B.

ZYKOV, S. I.

ZYKOV, S. I.,

Zykov, S. I., Ivanova, K. S., Kuchina, G. N., Mikhalevskaya, A. D., Filippov, M. S. - The Age of the Rare Metal Akchatau Intrusion According to Data Obtained by the Lead and Argon Method.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957.

Izv. Ak Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 Author Pekarskaya, T. B.

ZYKOV, S. I.,

Zykov, S. I., Tugarinov, A. I. - The Suitability of Several Radioactive Minerals for the Age Determination.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957.

Izv. Ak Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 author Pekarskaya, T. B.

ZYKOV, S.I.

VINOGRADOV, A.P.; TUGARINOV, A.I.; FEDOROVA, V.A.; ZYKOV, S.I.

Age of pre-Cambrian rocks of the Ukraine [with summary in English] Report no.3 Geokhimiia no.7:559-565 '57. (MIRA 11:1)

1. Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva.
(Ukraine--Geology, Stratigraphic) (Nuclear geophysics)

ZYKOV, S.I.

ZHIROVA, V.V.; ZYKOV, S.I.; TUGARINOV, A.I.

Age of pegmatites of the Slyudyanka region [with summary in English]. Geokhimiia no.7:592-599 '57. (MIRA 11:1)

1. Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva.

(Slyudyanka region--Pegmatites)
(Nuclear geophysics)

Zykov S.I.

ZYKOV, S.I.; STUPNIKOVA, N.I.

Determining the isotopic composition of lead [with summary in English]. Zhur.anal.khim. 12 no.4:556-558 Jl-Ag '57. (MIRA 10:10)

1.Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR i kafedra geokhimii Geologicheskogo fakul'teta Moskovskogo Gosudarstvennogo universiteta im. M.V. Lomonosova.
(Lead--Isotopes)

ZYKOV, S.L.

Concrete molds for making details of precast cornices. Suggested by S.L.Zykov. Rats.i izobr.predl.v stroi. no.13:15-18 '59. (MIRA 13:5)

1. Starshiy instruktor Sibirskogo filiala instituta Orgstroy Ministerstva stroitel'stva RSFSR.
(Cornices)

ZYKOV, Sergey Petrovich; SERGEYEV, S.redaktor; PIOTROVICH, M. tekhnicheskiy redaktor.

[In sunny Syria; a Soviet journalist's notebook] V solnechnoi Sirii; iz zapisok sovetskogo zhurnalista. Moskva, Gos. izd-vo polit. lit-ry, 1957. 62 p. (MLRA 10:5)
(Syria--Description and travel)

ZYKOV, S.S.

Utilizing the productive capacities of Tajik cotton mills.
Trudy AN Tadzh.SSR 92:51-64 '58. (MIRA 13:4)
(Tajikistan--Cotton manufacture)

PRUDENSKIY, G.A., red.; STARODUBSKIY, L.V., otv. red.; ZYKOV, S.S., red.; PERVUSHIN, V.A., red.; SOMIN, M.Ya., red.; ROMANOVA, E.A., red.; MAZUROVA, A.F., tekhn. red.; VYALYKH, A.M., tekhn. red.

[Problems of labor resources in Siberia]Voprosy trudovykh resursov v raionakh Sibiri. Pod obshchei red. G.A.Prudenskogo. Novosibirsk, Izd-vo Sibirskogo otd-nie AN SSSR, 1961. 168 p. (MIRA 15:10)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut ekonomiki i organizatsii promyshlennogo proizvodstva.
(Siberia--Labor supply--Statistics)

ZAKHAROV, Geral'd Alekseyevich; ZYKOV, S.S., kand. ekon. nauk, otv. red.; NAZARYANTS, T.M., red.; LOKSHINA, O.A., tekhn. red.

[Special features and prospects for developing the metalworking industry in Magadan and Kamchatka Provinces] Osobennosti i perspektivy razvitiia metalloobrabatyvaiushchei promyshlennosti Magadanskoi i Kamchatskoi oblastei. Novosibirsk, Izd-vo Sibirskogo otd-niia AN SSSR, 1962. 101 p. (MIRA 16:3)
(Magadan Province—Metalwork)
(Kamchatka—Metalwork)

ZYKOV, S.S., kand.ekon.nauk

For rhythmical and steady operation of cotton-ginning mills. Tekst. prom. 18 no.5:11-13 My '58. (MIRA 11:5)
(Cotton gins and ginning)

ZYKOV, V.

AUTHOR: Zykov, V. (Moscow) 107-57-6-21/57

TITLE: Automatic Stopping Device for a Record Player (Avtostop dlya proigryvatelya)

PERIODICAL: Radio, 1957, Nr 6, p 19 (USSR)

ABSTRACT: The device consists of an electromagnet whose plunger is mechanically coupled with the power supply switch of the record player. The electromagnet coil is energized by a contact which closes when the tone arm comes to its outermost position. The electromagnet operates and turns off the record player.

AVAILABLE: Library of Congress

Card 1/1

RZHESHEVSKIY, O., podpolkovnik; ZYKOV, V., mayor

"Fire brigade" of the Pentagon. Voen.vest. 43 no.7:116-120 Jl '63. (MIRA 16:11)

ZYKOV, V. (Moskva)

Automatic stop for record players. Radio no.6:19 Je '57. (MIRA 10:7)
(Phonograph)

ZYKOV, V.

"Automatic shops" created by young modelmakers. IUn.tekh. 7 no.1:64-65 Ja '63. (MIRA 16:5)

1. Rukovoditel' kruzhka tekhnicheskogo modlirovaniya Doma pionerov g. Glazova.

(Glazov--Pioneers (Communist youth))
(Machinery, Automatic--Models)

L 13181-66

ACC NR: AP6001851 SOURCE CODE: UR/0310/65/000/009/0031/0031

AUTHOR: Zykov, V. (Senior engineer, Designer)

ORG: Krasnoyarsk SRZ

TITLE: A device for remote anchor release

SOURCE: Rechnoy transport, no. 9, 1965, 31

TOPIC TAGS: shipbuilding engineering, ship component, remote handling equipment

ABSTRACT: In 1963-64 ship maintenance yards of the Yenisey steamship administration (Yeniseyskoye parokhodstvo) one tugboat and two dry goods cargo ships were equipped with remote anchor release devices. In each case the device operated only one of the two fore anchors. The note describes the operation of the capstan brake and screw-stoppers in the case when the bridge is close to the bow (tugboat) and when there is ample space in the fore section of the ship. Both systems proved simple and reliable in operation. Orig. art. has: 1 figure.

SUB CODE: 13 / SUBM DATE: none

Card 1/1 HW

UDC: 629.128.004

ZYKOV, V.A.

127-58-5-6/30

AUTHORS: Yelin, S.N., Chief of the Designing Section of the Apatit Combine; Svinin, S.P., Technical Director of an Open Pit of the Mine imeni Kirov; Zykov, V.A., Chief Mechanic of the Apatit Combine

TITLE: Derricks With "Sunk" Drilling Machines for Open Mining (Burovyye stanki s pogruzhnym perforatorom dlya otkrytykh rabot). At the Apatite Mine imeni Kirov (Na apatitovom rudnike imeni Kirov)

PERIODICAL: Gornyy Zhurnal, 1958, Nr 5, pp 28-30 (USSR)

ABSTRACT: A derrick with a "sunk" drilling machine was designed by the authors and manufactured in 1956 in the repair-mechanical plant of the Apatit Combine. Technical characteristics are as follows: diameter of bore holes - 150 mm; depth of drilling - 20 m; derrick height - 8,700 m; width - 2,700 mm; length - 7,000 mm; electric motor power - 4.5 kw; the sunk drilling machine is of the BMK-2 type and operates by compressed air at 5 atm pressure. This device was tested in an open pit of the mine imeni Kirov, which mines the western part of the apatite-nepheline ores of 8 to 9 hard-

Card 1/2

127-58-5-8/30

Derricks With "Sunk" Drilling Machines for Open Mining. At the Apatite Mine imeni Kirov

ness (by Professor Protod'yakonov scale). Drilling speed was 3 to 3.5 m per hour. The machine proved to have considerable advantages in comparison with percussion-cable drilling machines, since it can drill 20 to 25 m of shot-holes of 150 mm in diameter per shift, whereas percussion-cable drilling machines have an average shift capacity of only 3 to 5 m of 200-mm shot-holes. The new device is simple and safe in operation and can be handled by one worker.
There are 4 figures.

ASSOCIATION: Apatit Combine

AVAILABLE: Library of Congress

Card 2/2 1. Drilling machines-Design

GREBENNIKOV, D.A., gornyy inzh.; ZYKOV, V.A.; GUSHCHIN, V.V.; DEMIDENKO, I.F.; RODIONOV, G.V., prof., doktor tekhn.nauk

Discussion of IA. B. Kal'nitskii and S.P. Vasil'evskii's article "Problems in the automation of stoping equipment in the mining industry." Gor. zhur. no.10:59-64 O '61. (MIRA 15:2)

1. Glavnyy mekhanik kombinata "Apatit" (for Zykov). 2. Glavnyy inzh. kombinata "Apatit" (for Gushchin). 3. Upravlyayushchiy rudnikom Odra-Bash Kuznetskogo metallurgicheskogo kombinata (for Demidenko). 4. Institut gornogo dela Sibirskogo otdeleniya AN SSSR (for Rodionov).

(Mining machinery)

YELIN, S.N.; SVININ, S.P.; ZYKOV, V.A.; IBRAYEV, Sh.I., dots, kand.tekhn.nauk; MATVIYENKO, A.A.

1.Nachal'nik konstruktorskogo otdela kombinata Apatit (for Yelin). 2.Tekhnicheskiy rukovoditel' kar'yera rudnika im. Kirova kombinata Apatit (for Svinin). 3.Glavnyy mekhanik kombinata Apatit (for Zykov). 4.Institut gornogo dela AN KazSSR (for Ibrayev). 5.Glavnyy inzhener Ukrainskogo byuro vzryvnykh rabot v promyshlennosti (for Matviyenko).

(Boring machinery)

ZYKOV, V.A., inzhenar; SHPAKOV, V.I., inzhener.

PChM-4 receiver set. Vest.sviazi 16 no.2:5-6 F '56. (MLRA 9:7)

1.Laboratoriya Moskovskoy direktsii radiosvyazi i radioveshchaniya.
(Radio--Receivers and reception)

BORISOV, M.D.; ZYKOV, V.G.; STEPANENKO, I.A.; TERNOPOL, A.M.; PADALKA, V.G.; BRZHECHKO, L.V.

[Plasma production by the radial compression method and measurement of certain plasma parameters] Poluchenie plazmy metodom radial'nogo szhatiia i izmerenie ee nekotorykh parametrov. Khar'kov, Fiziko-tekhn. in-t AN USSR, 1960. 277-294 p.
(MIRA 17:3)

30088
S/057/61/031/011/003/019
B104/B108

26.7311

AUTHORS: Il'yenko, B. P., and Zykov, V. G.

TITLE: Experimental determination of the regions of magnetic surfaces limited by a separatrix

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 11, 1961, 1289 - 1293

TEXT: Attempts are made to determine experimentally the regions of magnetic surfaces limited by a separatrix as functions of the longitudinal magnetic field and the current in a stellarator coil, using a model in which the plasma is simulated by an electron beam. The experimental device is a cylindrical vacuum chamber made of glass (10 cm in diameter, 80 cm long), which is evacuated down to $5 \cdot 10^{-6}$ mm Hg. An electron gun injecting electrons of 1000 - 1500 ev is installed at one end of the tube. At the other end there is a fluorescent screen for observing the shape and size of the electron beam. The longitudinal magnetic field is generated by a single-layer solenoid (14 cm in diameter, 60 cm long). The stellarator field is generated by a coil which is mounted to the glass

Card 1/3

Experimental determination of the ...

tube (three pairs of turns with a radius of 5.5 cm, at a pitch of 60 cm). Both coils are fed from separate sources, and the currents flowing in them can be controlled independently. An out-of-focus electron beam was injected to determine the regions limited by the separatrix. Measurements were made at H_z = 20 oersteds. When the stellarator field and the longitudinal magnetic field were switched on simultaneously the image on the screen changed from a circle into a triangle. Its vertices pointed toward those turns of the stellarator coil, in which the current was directed opposite H_z. When the screen was moved along the axis of the tube, the triangle rotated. L. Spitser (Dokl. na II Zhenev. Konf. po mirn. ispol'z. atom. energii, 1958), A. I. Morozov, A. S. Solov'yev (ZhTF, 30, 271, 1960) and V. F. Aleksin (K raschetu magnitnogo polya stellaratora, nast. vyp., str. 1284) are mentioned. The authors thank V. F. Aleksin and V. T. Tolok for advice, and K. D. Sinel'nikov, Member of the AS UkrSSR, for assistance and interest. There are 8 figures, 2 tables, and 4 references: 2 Soviet and 2 non-Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR (Physicotechnical Institute AS UkrSSR)

Card 2/3

30088
S/057/61/031/011/003/019
B104/B108

Experimental determination of the ...

SUBMITTED: September 10, 1960

Card 3/3

X

ACCESSION NR: AT4036069 S/2781/63/000/003/0262/0273

AUTHORS: Zy*kov, V. G.; Stepanenko, I. A.; Tolok, V. T.; Sinel'nikov, K. D.

TITLE: Investigation of plasma capture in a magnetic trap

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i problemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and problems of controlled thermonuclear synthesis); doklady* konferentsii, no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 262-273

TOPIC TAGS: plasmoid, plasma source, plasmoid plasma interaction, magnetic trap, plasma confinement, Coulomb repulsion force, plasma injection

ABSTRACT: The first reports are presented of experiments on the confinement of a plasma in a trap with bucking fields, with simultaneous

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ACCESSION NR: AT4036069

injection of plasma in the opposite direction. The apparatus consists of a cylindrical vacuum chamber 20 cm in diameter made of stainless steel and placed inside the field-producing coils. Each coil is connected to buck the neighboring one, so that three traps with sharp-angle magnetic field geometry are produced, with a 15.6 cm distance between magnetic gaps. Conical plasma guns were used. The plasma was injected into the apparatus pumped out to 6.6×10^{-4} n/m^2. The central trap was the principal one and the outer ones served for injection of the plasma into the central trap. Double electrostatic probes were used to measure the ion density, the electron temperature, and the time dependence of the density. The plasma propagation in the trap was investigated by using targets of photographic paper, the surface of which burned out after several impacts by the plasma. The apparatus and the probes are described in detail. The interaction of the opposing plasma streams is confirmed by several of the results of the investigations. Estimates also show that Coulomb interaction exists between the plasmoid particles. It is

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ACCESSION NR: AT4036069

pointed out that both the apparatus and the method are preliminary and this affects the accuracy of the final results. Orig. art. has: 12 figures.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 21May64 ENCL: 01

SUB CODE: ME NR REF SOV: 003 OTHER: 003

Card 3/4

ACCESSION NR: AT4036069

ENCLOSURE: 01

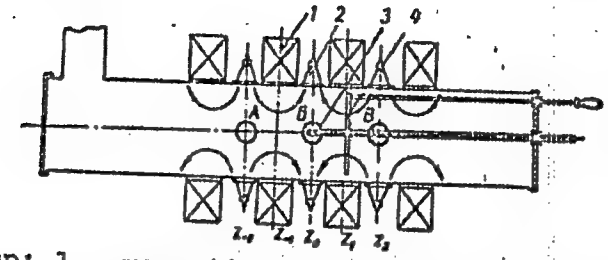
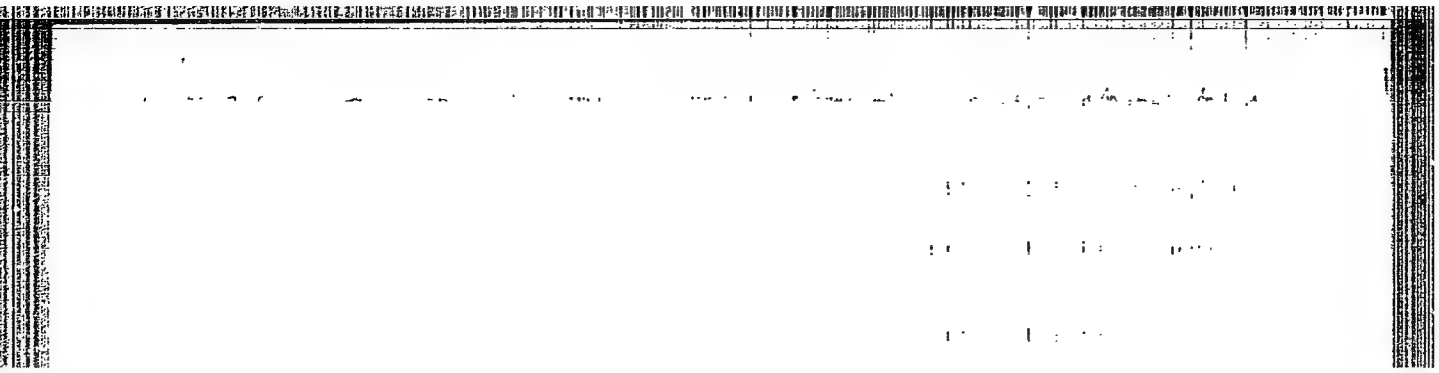


Diagram of setup: 1 - magnetizing coils, 2 - plasma gun, 3 - double electric probe, 4 - diamagnetic probe.

Card 4/4

ZYKOV, V.G.; STEPANENKO, I.A.; DUSHIN, L.A.; NIKOI SKIY, I.K.; PAVLICHENKO, O.S.; TOLOK, V.T.

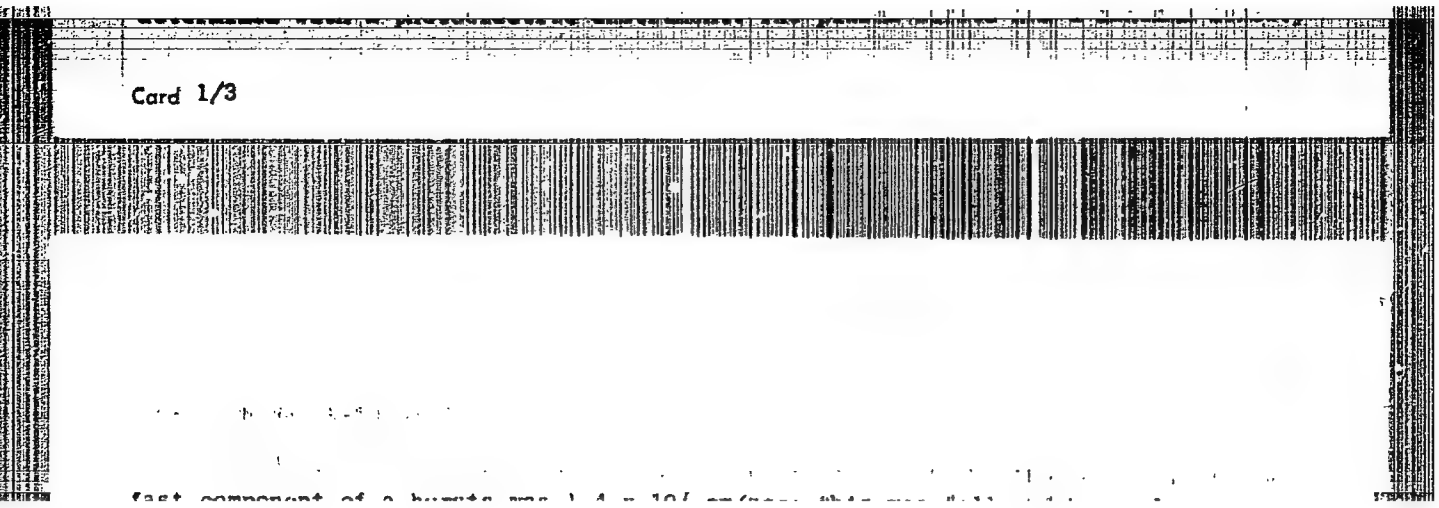
Spectroscopic study of plasma clots in collision. Zhur. tekh. fiz. 35 no.1:56-61 Ja '65. (MIRA 18:3)

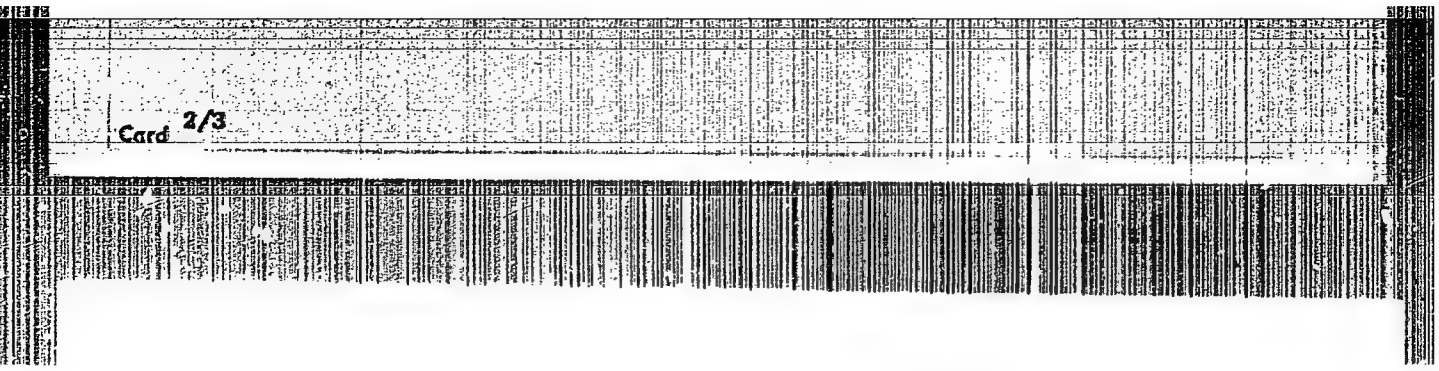


APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065810008-1"

TOPIC TAGS: plasma interaction, plasma spectral line, charge exchange

and [illegible] concerning the confinement of





L 12862-66 EWT(1)/ETC(F)/EPF(n)-2/EWG(m) IJP(c) AT

ACC NR: AT5022298 SOURCE CODE: UR/3137/64/000/048/0001/0015

AUTHOR: Il'yenko, B. P.; Lats'ko, Ye. M.; Zalkind, V. M.; Zykov, V. G.; Tolok, V. T.

ORG: Physicotechnical Institute, Academy of Sciences UkrSSR (Fiziko-tekhnicheskiy institut Akademiya nauk UkrSSR)

TITLE: Investigation of a plasmoid moving in a toroidal magnetic field

SOURCE: AN UkrSSR. Fiziko-tekhnicheskiy institut. Doklady, no. 048/P--007, 1964. Issledovaniye plazmennogo sgustka, dvizhushchegosya v toroidal'nom magnitom pole, 1-15

TOPIC TAGS: plasmoid, plasma magnetic field, plasma density, plasma injection

ABSTRACT: The present paper is a continuation of an investigation of electrical fields in plasmoids moving in curved magnetic fields. Fig. 1 shows the general view of the experimental apparatus used in the investigation. The maximum magnetic field was 200 ka/m, length of vacuum tube was 252 cm, effective radius of spiral windings was 5.4 cm. The plasma was injected from conical plasma sources. Battery capacity was

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L 12862-66

ACC NR: AT5022298

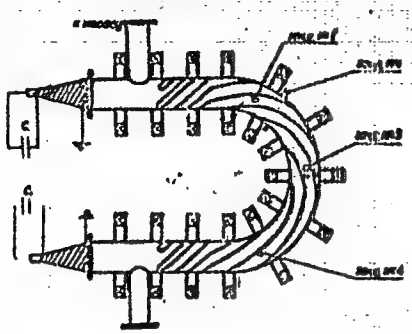


Fig. 1.

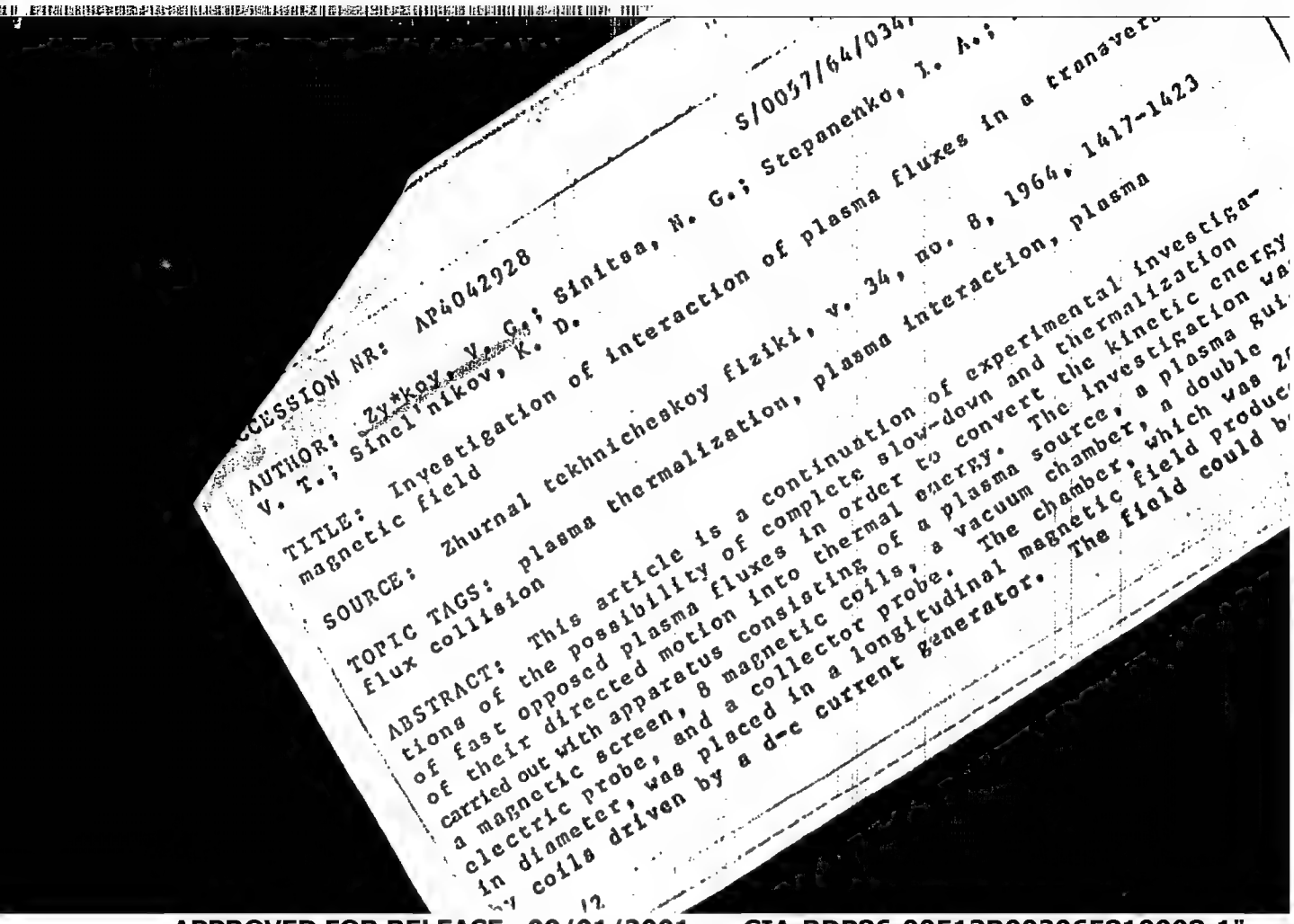
3 μf and discharge time 6.5 μsec. Plasma density injected by the source was not less than 10^{13} cm^{-3}. To measure the difference of potentials between two points in the plasma, two electrostatic probes were used: one grounded and located close to the wall of the chamber and the second moving along the cross section of the vacuum chamber. Measurements of the V_z component of the field was taken in the middle of toroidal portion. The z-direction is parallel to the axis through the origin of the large radius of curvature. It is confirmed that component V_z is formed due to the separation of charges resulting from the drift forces. It was noticed that in the curved section, the components of the plasmoid's radial polarization were equal to the V_z component. Later, the V_z component dominated the other two components. Measurements confirm the fact that the magnetic field of spiral type improves the passing of plasmoids by about one order of magnitude. Orig. art. has: 13 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 005/ OTH REF: 001

Card 2/2 HW

ZYKOV, V.G.; STEPANENKO, I.A.; TOLOK, V.T.

Polarization interaction of opposing plasma streams in a trap with combined magnetic fields. Zhur. tekh. fiz. 35 no.9:1585-1589 S '65.
(MIRA 18:10)



S/0057/64/034

ACCESSION NR: AP4042928

AUTHOR: Zy*kov, V. G.; Sinitsa, N. G.; Stepanenko, I. A.; V. T.; Sinel'nikov, K. D.

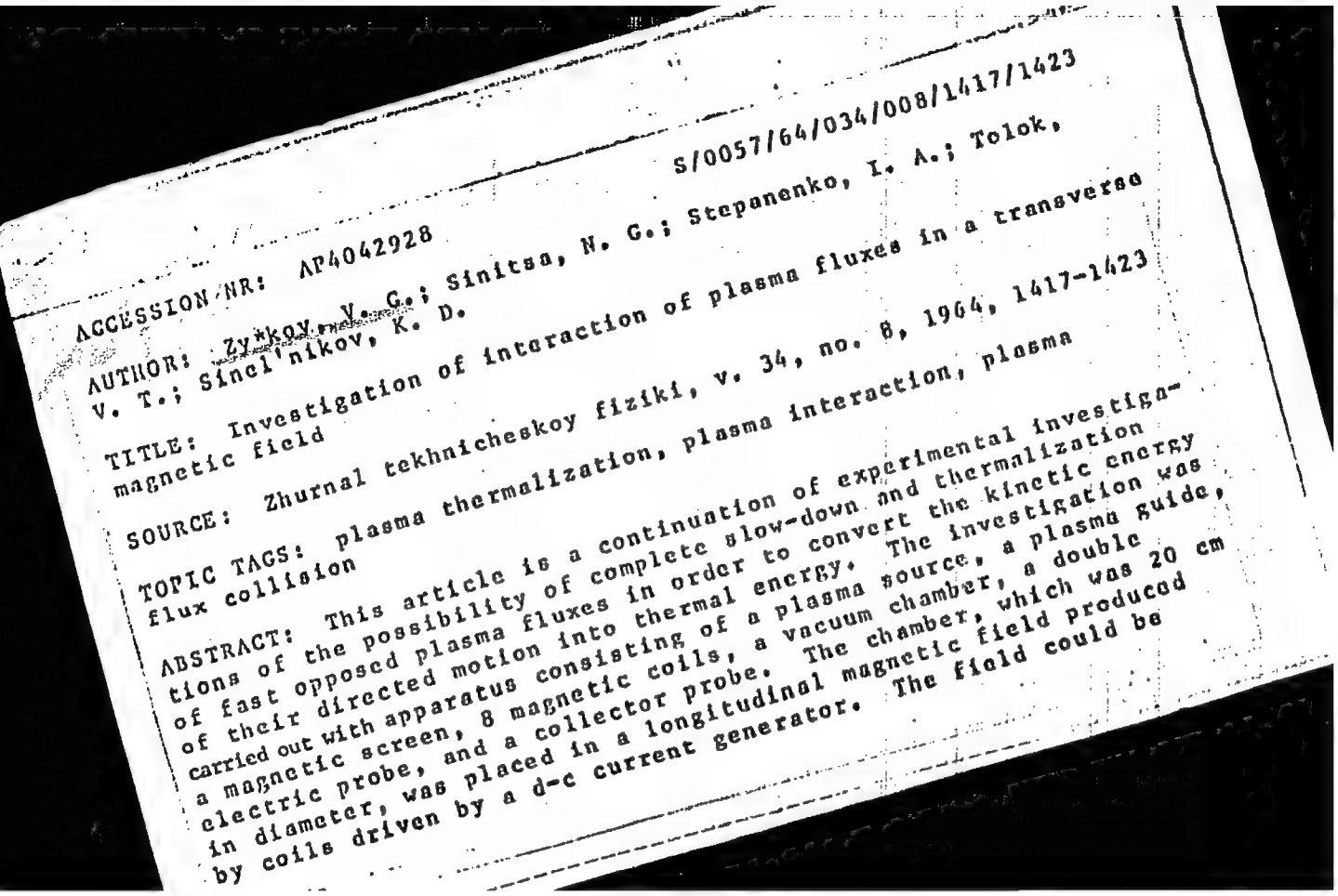
TITLE: Investigation of interaction of plasma fluxes in a transverse magnetic field

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 34, no. 8, 1964, 1417-1423

TOPIC TAGS: plasma thermalization, plasma interaction, plasma flux collision

ABSTRACT: This article is a continuation of experimental investigations of the possibility of complete slow-down and thermalization of fast opposed plasma fluxes in order to convert the kinetic energy of their directed motion into thermal energy. The investigation was carried out with apparatus consisting of a plasma source, a plasma gun, a magnetic screen, 8 magnetic coils, a vacuum chamber, a double electric probe, and a collector probe. The chamber, which was 2[illegible] in diameter, was placed in a longitudinal magnetic field produced by coils driven by a d-c current generator. The field could b[illegible]

12



ACCESSION NR: AP4042928 S/0057/64/034/008/1417/1423

AUTHOR: Zy*kov, V. G.; Sinitsa, N. G.; Stepanenko, I. A.; Tolok, V. T.; Sinel'nikov, K. D.

TITLE: Investigation of interaction of plasma fluxes in a transverse magnetic field

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 34, no. 8, 1964, 1417-1423

TOPIC TAGS: plasma thermalization, plasma interaction, plasma flux collision

ABSTRACT: This article is a continuation of experimental investigations of the possibility of complete slow-down and thermalization of fast opposed plasma fluxes in order to convert the kinetic energy of their directed motion into thermal energy. The investigation was carried out with apparatus consisting of a plasma source, a plasma guide, a magnetic screen, 8 magnetic coils, a vacuum chamber, a double electric probe, and a collector probe. The chamber, which was 20 cm in diameter, was placed in a longitudinal magnetic field produced by coils driven by a d-c current generator. The field could be

ACCESSION NR: AP4042928

varied from 0 to 0.5 T. Eight plasma guns were distributed along the inner circumference of the central part of the chamber. The discharge period was 6 μsec. The plasma consisted of fast and slow components with velocities of 8×10^4 and 3×10^4 m/sec respectively at 4 kv potential in the gun and contained hydrogen, carbon, oxygen, and nitrogen ions. High-speed photography was used for recording. The experiments show that during head-on collisions of the opposed plasma flows in a transverse magnetic field, a strong slow-down to a complete stop of their motion in the initial direction occurs. Contrary to Coulomb interactions, this interaction does not occur in the volume of plasma streams but in their forward fronts and is of a turbulent character. It is important to note that such an interaction should take place even when there is no Coulomb interaction. Orig. art. has: 12 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 27Nov63 ATD PRESS: 3074 ENCL: 00

SUB CODE: NP, EM NO REF SOV: 004 OTHER: 004

Card 2/2

ZYKOV, V.G.; SINITSA, N.G.; STEPANENKO, I.A.; TOLOK, V.T.; SINEL'NIKOV, K.D.

Interaction of plasma streams in a transverse magnetic field.
Zhur. tekh. fiz. 34 no.8:1417-1423 Ag '64. (MIRA 17:9)

IL'YENKO, B.P.; LATS'KO, Ye.M.; ZALKIND, V.M.; ZYKOV, V.G.; TOLOK, V.T.

Polarization of a plasma moving in a helical magnetic field. Zhur. tekh. fiz. 35 no.9:1594-1597 S '65.

Polarization of a plasma moving in a toroidal magnetic field. Ibid.:1598-1601

Polarization of a plasmoid moving in magnetic fields with different signs of the curvature of the lines of force. Ibid.:1602-1605

(MIRA 18:10)

ZYKOV, V.G.; STEPANENKO, I.A.; TOLOK, V.T.; SINEL'NIKOV, K D.

Study of plasma capture in a magnetic trap with opposing fields. Zhur. tekh. fiz. 35 no.1:62-71 Ja '65. (MIRA 18:3)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.

L 2491-66 EWT(1)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2 IJP(c) AT
ACCESSION NR: AP5020723 UR/0057/65/035/008/1390/1393

AUTHOR: Zykov, V.G.; Stepanenko, I.A.; Tolok, V. T.

TITLE: Interaction of polarized plasma streams in a magnetic field that increases toward the periphery

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 8, 1965, 1390-1393

TOPIC TAGS: turbulent plasma, plasma confinement, plasma injection, plasma interaction, magnetic trap, magnetic mirror, cusped magnetic field

ABSTRACT: The authors and collaborators have previously investigated the interaction of oppositely directed plasma streams in a uniform transverse magnetic field (ZhTF, 32, 1050, 1962). The oppositely polarized plasmas interacted strongly and deceleration occured; turbulence arose, however, which led to loss of plasma. In the present paper the authors report experiments with oppositely directed plasmas in a biconical cusped field, which were undertaken with the expectation that the more smoothly varying field would not give rise to turbulence. The biconical cusp was produced in a 30 cm diameter stainless steel chamber by the discharge with a 19 μsec period of a 2700 μfd capacitor through appropriate windings. The maximum

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field strength in the mirror region was 8800 Oe, and in the cusp at the chamber wall, 2250 Oe. Plasmas were injected from one, two, or four conical guns symmetrically disposed with respect to the plane of the cusp in a meridian plane of the biconical field. The injection directions were at 45° to the axis of the field. Each plasma gun was fired by the 12-15 kV discharge of a 1.2 μfd capacitor, the discharge period being 3.5 μsec. The behavior of the plasmas was observed by photographing their luminescence from different directions, and the plasma polarization at different points was measured with a double floating probe. The plasma polarization did not vanish when the plasma crossed the central point of zero magnetic field; it disappeared only after the plasma had penetrated several centimeters beyond this point into the region of oppositely directed field. The oppositely directed plasmas did strongly interact without observable turbulence, but part of the plasma escaped through the cusp, and part escaped through the mirrors.

"In conclusion, we express our deep gratitude to Academician K.D.Sinel'nikov for his valuable advice and interest in the work." Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 16Nov64 ENCL: 00 SUB CODE: ME

NR REF SOV: 003 OTHER: 000

L 3614-66 EWT(1)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2 IJP(c) AT
ACCESSION NR: AP5024033 UR/0057/65/035/009/1585/1589
533.9

AUTHOR: Zykov, V. G.; Stepanenko, I. A.; Tolok, V. T.

TITLE: Polarization interaction of opposed plasma streams in a composite magnetic field trap

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 9, 1965, 1585-1589

TOPIC TAGS: magnetic mirror, combined magnetic field, plasma injection, plasma jet, plasma confinement, plasma interaction

ABSTRACT: The authors have investigated the behavior of plasma bursts colliding within a magnetic mirror system provided with an auxiliary quadrupole or octupole magnetic field. The magnetic mirror system was produced in a 30 cm diameter stainless steel chamber by discharge of a 2700 microfarad capacitor through suitable windings. The maximum magnetic field at the center of the system was 2800 Oe and the mirror ratio was 2.16. The auxiliary field was provided by currents in eight copper rods parallel to the main field and disposed at equal intervals on the surface of a 10.6 cm diameter cylinder. The rods could be connected variously in series or series-parallel, but the rod system was always connected in series with the main windings so that the ratio of the auxiliary to the main field remained constant during the discharge. At the surface of the 1 cm diameter rods this ratio

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ACCESSION NR: AP5024033

3.

was 0.87. Plasma bursts from four conical plasma guns disposed symmetrically in the equatorial plane of the mirror system were injected transversely to the main magnetic field. The velocity of the leading edge of a plasma jet was 2×10^6 cm/sec and the ion density was of the order of 10^{13} cm^{-3}. In the presence of the auxiliary magnetic field the turbulent plasma "protuberances" observed earlier by the authors and collaborators (ZhTF, 34, 1417, 1964) did not occur, and there was no difficulty in assuring head on collision between oppositely directed jets. It was established with the aid of probes that the oppositely polarized colliding jets interacted strongly. The maximum plasma density in the center of the system was much greater when the auxiliary field was present than when it was not, but the confinement time was the same in both cases. "The authors express their sincere gratitude to Academician K.D.Sinel'nikov for his valuable advice and support of the work." Orig. art has: 4 figures. 44,55

ASSOCIATION: none

SUBMITTED: 16Nov64 ENCL: 00 SUB CODE: ME

NO REF SOV: 004 OTHER: 000

Card 2/2

L 3611-66 EWT(1)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2 IJP(c) AT
ACCESSION NR: AP5024036 UR/0057/65/035/009/1598/1601

AUTHOR: Il'yenko, B.P.; Lats'ko, Ye.M.; Zalkind, V.M.; Lykov, V.G.; Tolok, V.T.

TITLE: Investigation of the polarization of a plasma moving in a toroidal magnetic field

SOURCE: Zurnal tekhnicheskoy fiziki, v. 35, no. 9, 1965, 1598-1601

TOPIC TAGS: inhomogeneous plasma, electric field, toroidal geometry, longitudinal magnetic field

ABSTRACT: The authors measured the polarization of plasmas moving in a toroidal magnetic field. The magnetic field (up to 200 kA/m) was produced in a U-shaped copper drift tube (diameter not given). The large radius of the toroidal section of the drift tube was 42 cm and the straight legs were 60 cm long. Plasmas with ion densities exceeding 10^{13} cm^{-3} were injected at one end of the drift tube with a conical plasma gun powered by the 8-12 kV 6.5 μ sec discharge of a 3 μfd capacitor. The charged particle density of the injected plasmas was not less than 10^{13} cm^{-3}. The electric field polarization in the plasma was measured with probes at the exit from the toroidal section. The polarization field had components in the direction

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L 3611-66

ACCESSION NR: AP5024036

of the large radius of the torus and in the direction of the axis of the torus. The axial component changed sign when the direction of the longitudinal field was reversed, and the component did not. The distribution of the polarization field across the section of the drift tube and the variation of the polarization field with the longitudinal magnetic field strength were measured and are presented graphically. By comparing the time of maximum polarization with that at which a 3 cm wave crossing the drift tube was cut off by the plasma, it was established that the polarization was confined almost entirely to the more rapid, less dense leading portion of the plasma burst. Orig. art. has: 9 figures.

ASSOCIATION: none

SUBMITTED: 18Dec64

ENCL: 00

SUB CODE: ME

NR REF SOV: 002

OTHER: 002

Card 2/2

L 3610-66 ETC/EPF(n)-2/EWG(m)/EPA(w)-2 IJP(c) AT

ACCESSION NR: AP5024037 UR/0057/65/035/009/1601/1605

533.9

AUTHOR: Il'yenko, B. P.; Lats'ko, Ye. M.; Zalkind, V. M.; Zykov, V. G.; Tolok, V. T.

TITLE: Investigation of the polarization of plasmas moving in magnetic fields of opposite curvatures

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 9, 1965, 1601-1605

TOPIC TAGS: inhomogeneous plasma, electric field, toroidal geometry, longitudinal magnetic field,

ABSTRACT: The authors measured the polarization of plasmas moving in a toroidal magnetic field, using the apparatus described in the two accompanying papers (ZhTF 35, 1598, 1601, 1965 [see abstracts AP5024035 and AP5024037]) and, in addition, a 7.4 cm diameter S-shaped copper drift tube consisting of two half-tori of 35 cm large radius joined by a 20 cm long straight section. A longitudinal magnetic field of 200 kA/m was maintained in both drift tubes. Plasmas could be injected at either or both ends of both drift tubes by means of conical plasma guns. The polarization of the plasmas was measured with probes located at the center of the toroidal section of the U-shaped drift tube and in the straight section joining the

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L 3610-66

ACCESSION NR: AP5024037

two half-tori of the S-shaped drift tube. The polarization is analyzed in terms of three components V_z, V_R, and V_r: V_z is parallel to the axis of the torus, V_R is in the direction of the large radius of the torus, and V_r is in the plane of V_z and V_R and is directed away from the axis of the drift tube (along the small radius of the torus). It was found that V_z changes sign when the direction of the magnetic field is reversed but not when the direction of motion of the plasma through the U-shaped drift tube is reversed without reversing the field. When the direction of motion of the plasma through the S-shaped drift tube was reversed, however, the V_z component of the polarization measured in the straight section joining the two half-tori changes sign. When two oppositely moving plasmas collided in the center of the U-shaped drift tube the value of V_z was approximately the same as when only one plasma was present. When two oppositely moving plasmas collided in the straight section joining the two half-tori of the S-shaped drift tube, the V_z polarization components of the two plasmas canceled each other and only V_r was measured. The distributions of V_z and V_r across the drift tube are presented graphically. It was found that V_z and V_r are of comparable magnitude in the fast leading edge of the plasma burst, but that V_z predominates in the tail. Orig. art. has: 8 figures.

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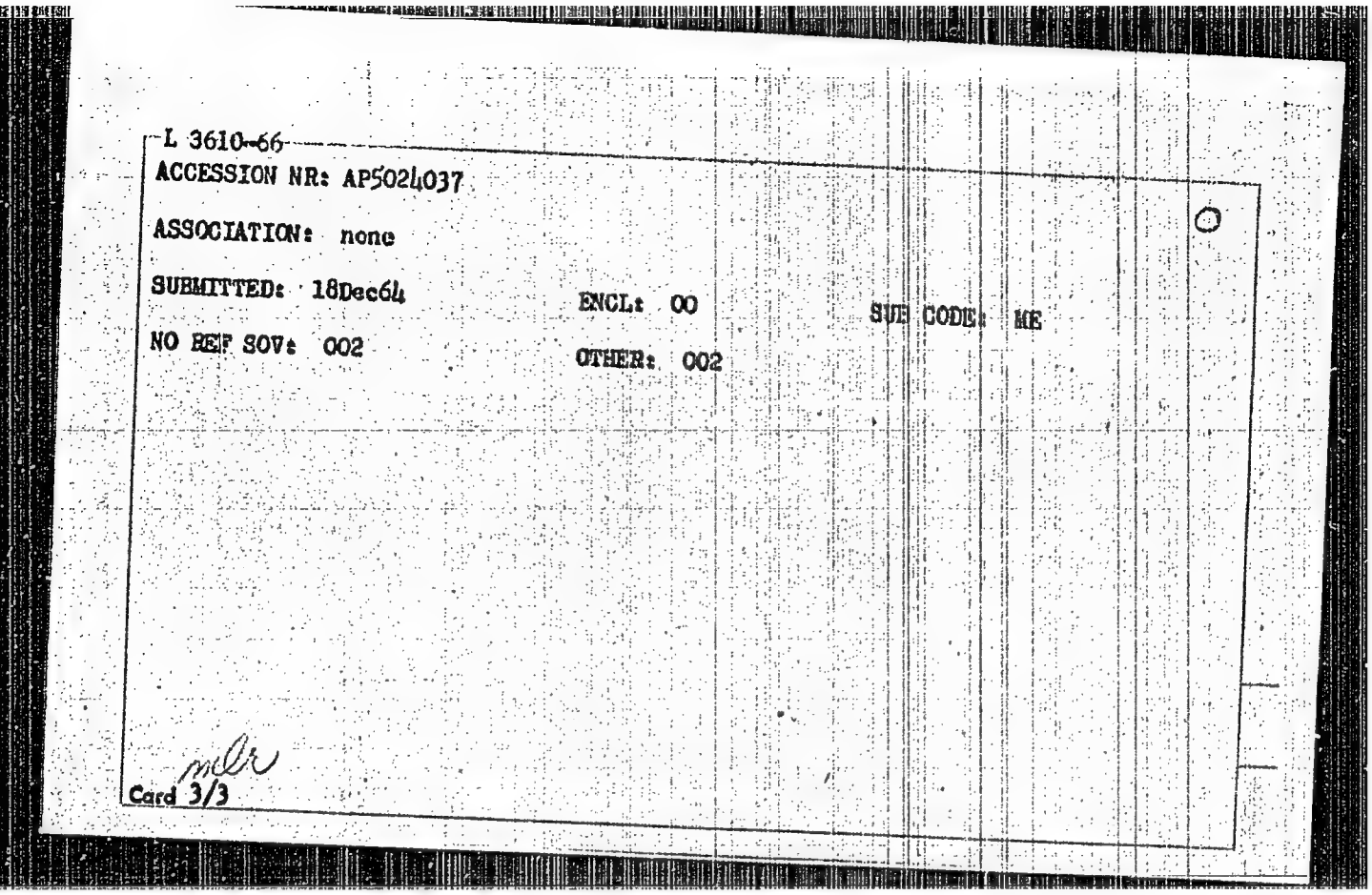

L 3610-66
ACCESSION NR: AP5024037

ASSOCIATION: none

SUBMITTED: 18Dec64 ENCL: 00 SUB CODE: ME

NO REF SOV: 002 OTHER: 002

Card 3/3

ACC NR: AP6036030 SOURCE CODE: UR/0057/66/036/011/1971/1975

AUTHOR: Zykov,V.G.; Stepanenko,I.A.; Tolok,V.T.

ORG: none

TITLE: Volume polarization interaction of plasmas in a multipole magnetic field

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 11, 1966, 1971-1975

TOPIC TAGS: plasma injection, dense plasma, plasma gun, plasma interaction, non-homogeneous magnetic field, combined magnetic field, magnetic trap

ABSTRACT: The authors have investigated the behavior of plasma bursts with velocities of 2×10^6 cm sec and densities of 10^{12} to 10^{13} cm^{-3} produced by conical plasma guns and transversely injected singly or simultaneously in opposite directions into the magnetic field produced by the inductively loaded 3 kV discharge of a 2.7 millifarad capacitor bank through four parallel 1 cm diameter 150 cm long brass rods which formed the edges of a rectangular parallelepipedon with a cross section diagonal of 10.5 cm. The period of the loaded discharge was 4 millisec and the maximum strength of the magnetic field produced on the injection axis by the currents in the rods, all four of whichl were in the same direction, was 1.2 kOe. The injected plasmas were photographed and their behavior was investigated with electric and magnetic probes. It was found that a plasma burst of considerable density would pass through both magnetic barriers. From this it is concluded that simultaneous injection from

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ACC NR: AP6036030

opposite directions is necessary for efficient entrapment of plasma. The magnetic field configuration recorded with simultaneous injection of plasmas from opposite directions differed considerably from the algebraic sum of the fields recorded with single injection of plasmas from the two directions; this shows that the colliding plasmas interacted with each other. The moving plasmas were electrically polarized. The polarization of a singly injected plasma changed sign, but the polarization passed through zero not on the axis of the system, but some 0.5 cm beyond the axis in the direction of motion of the plasma. When two plasmas were simultaneously injected in opposite directions their polarizations decreased smoothly and vanished on the axis of the system. Plasma was entrapped in the field when; two plasmas were simultaneously injected; the entrapped plasma moved both along the magnetic lines of force and parallel to the axis of the system. It is planned to investigate injection of plasmas parallel to the axis of the system and entrapment of interacting plasmas in magnetic traps. The authors thank graduate student A.V.Pashchenko of the MIFI for participating in the measurements. Orig. art. has: 7 figures.

SUB CODE: 20 SUBM DATE: 22Jul65 ORIG. REF: 001 OTH REF: 002

Card 2/2

S/781/62/000/000/036/036

AUTHORS: Borisov, M. D. (deceased), Brzhechko L. V., Zykov V. G., Padalka V. G., Stepanenko I. A., Termopol,A. M.

TITLE: Spectroscopic measurements of ion temperature and ion density

SOURCE: Fizika plazmy i problemy upravlyayemogo termoyadernogo sinteza; doklady I konferentsii po fizike plazmy i problems upravlyayemykh termoyadernykh reaktsiy. Fiz.-tekh. inst. AN Ukr.SSR. Kiev, Izd-vo AN Ukr. SSR, 1962. 170-172

TEXT: Results are described, obtained with a model of the straight-line portion of racetrack apparatus for the study of discharge stability. The plasma was produced by the method of Colgate and Wright (ref. 1, Russian translation cited) in a glass tube 50 cm long and 8 cm in diameter, at a pressure of 10^{-2} mm Hg. An alternating longitudinal field up to 4000 G was produced by discharging a 3 microfarad capacitor; the field period was 14 microseconds. The field at the center of each coil was double the value, so that the mirror ratio was 2:1. The ion temperature and density were determined by studying the contour of the Balmer-series H_α line. It was estimated that only the Doppler effect and the

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statistical Stark effect contribute to the contour noticeably. Streak photographs have shown that the influence of radial plasma oscillations is small and the random motion of the ions does not affect the ion temperature appreciably. The correction for the apparatus function was determined with the aid of a Fabry-Perot interferometer. The experimentally obtained contour shows that the shape of the central portion is determined by the Doppler effect only, and the statistical Stark effect influences only the skirts (Holtzmark broadening). The ion temperature as determined from the half-width of the Gaussian curve was found to be approximately 4.5 eV, while the ion density ranged between 5×10^{14} and 3×10^{15} cm^{-3}. Were the hydrogen to be completely ionized, the density would be 10^{15} cm^{-3}. There is one figure.

ACCESSION NR: AT4036070 S/2781/63/000/003/0273/0282

AUTHORS: Zy*kov, V. G.; Stepanenko, I. A.; Tolok, V. T.; Sinel'nikov, K. D.

TITLE: Injection of plasma through an annular gap of a trap with opposing magnetic fields

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i problemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and problems of controlled thermonuclear synthesis); doklady* konferentsii, no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 273-282

TOPIC TAGS: plasmoid, plasma source, plasmoid plasma interaction, magnetic trap, plasma confinement, plasma injection

ABSTRACT: With an aim at reducing the particles lost when a plasma is injected into the trap through one of the axial magnetic mirrors,

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ACCESSION NR: AT4036070

the authors investigated the injection of plasma through the annular gap in the magnetic field from sources distributed around the gap periphery. The report describes the first experiments in which injection was investigated both in a stationary gap in the magnetic field, as well as in the gap existing during a certain time ("magnetic valve"). To simplify the initial experiments, the injection gap was produced by a constant field, with the coils connected to buck each other. A 20-cm diameter and 180-cm long cylindrical stainless steel vacuum chamber was used. Eight conical plasma guns were distributed uniformly around the periphery of the chamber in the magnetic gap plane. The synchronization circuit permitted simultaneous switching of all eight guns or a fraction of them. The plasmoids injected by each gun had a density 2×10^{14} cm^{-3} and a velocity of 3×10^{4} m/sec. The working vacuum was 6.6×10^{-4} n/m^2. The maximum magnetic field intensity, equal to 2×10^{5} A/m, was located 40 cm away from the magnetic gap. The experiments have shown that a plasma injected into a gap between opposing magnetic fields moves subse-

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quently along the system axis. A strong interaction was observed between the opposing plasma streams, even in the absence of external magnetic fields. The nature of this interaction, and the time of confinement of the plasma in the trap when such an injection method is used, will be investigated in the future. Orig. art. has: 9 figures.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 21May64 ENCL: 01

SUB CODE: ME NR REF SOV: 002 OTHER: 002

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ACCESSION NR: AT4036070

ENCLOSURE: 01

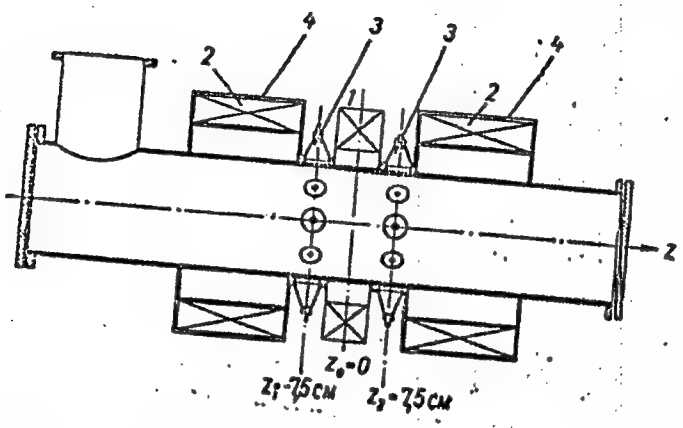

Diagram of set-up: 1 - coil of opposing magnetic field, 2 - coil of main magnetic field, 3 - plasma guns, 4 - protective shield

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ACCESSION NR: AT4036061 S/2781/63/000/003/0211/0216

AUTHORS: Il'yenko, B. P.; Zy*kov, V. G.; Lats'ko, Ye. M.; Tolok, V. T.

TITLE: Measurement of the twist angle and turning angle of a force line in a system with a helical magnetic field

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i problemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and problems of controlled thermonuclear synthesis); doklady* konferentsii, no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 211-216

TOPIC TAGS: magnetic mirror, plasma confinement, magnetic field, magnetic pinch, plasma magnetic field interaction, electron beam, charged particle motion

ABSTRACT: The work described is a continuation of earlier experi-

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ACCESSION NR: AT4036061

ments on the confinement of plasma in traps of the stellarator type (ZhTF v. 31, 1289, 1961 and v. 32, 1190, 1962). The paper is devoted to an experimental investigation of the twist angle and turning angle in systems with helical magnetic fields, using a vacuum chamber 9 cm in diameter and 140 cm long (straight copper tube). The longitudinal magnetic field was produced by 12 single-layer coils and had a maximum in the axial direction of 3.4×10^4 A/m. The charged particles were confined in the stellarator by external magnetic field in which each force line was gradually wrapped around the axial line of the chamber. The twist angle of the force lines were measured with the aid of a rotating electron gun, the construction of which is described elsewhere (ZhETF, v. 32, 1190, 1962). The measurement results were compared (in an axial magnetic field 3.4×10^4 A/m and at a current of 440 A) with the theoretical formula. The force-line rotation angle was measured on the curved section of the stellarator model in a longitudinal magnetic field 7.2×10^4 A/m and at a current of 1100 A in the coil. The measurements

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have shown that the angular rotation of the beams on the external side of the curvilinear section is larger than on the external side. This difference does not affect the motion of the particles in the closed system, since the average turning angle remains the same and depends only on the radius. The measurement results showed satisfactory agreement with the calculated data. Orig. art. has: 7 figures and 2 formulas.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 21May64 ENCL: 02

SUB CODE: ME NR REF SOV: 004 OTHER: 000

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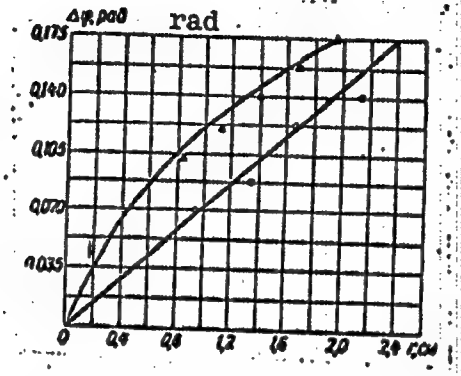
ACCESSION NR: AT4036061

ENCLOSURE: 03



Dependence of twist angle on the radius

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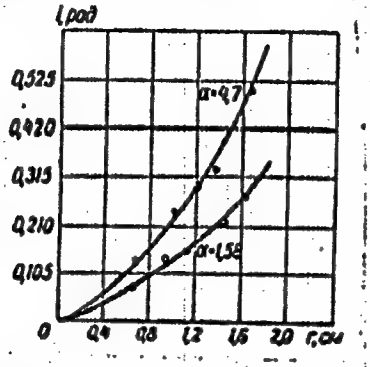

Dependence of turning angle on the radius

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B104/B102

26.2371

AUTHORS: Zykov, V. G., Il'yenko, B. P., Lats'ko, Ye. M., Stepanenko, I. A., Ternopol, A. M., Tolok, V. T., and Sinel'nikov, K. D.

TITLE: Investigation into the properties of magnetic surfaces in systems with a helical magnetic field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 10, 1962, 1190-1196

TEXT: The shapes of the magnetic surfaces in systems with stabilizing helical windings were studied by the method of the preceding electron beam, developed by F. V. Karmanov and P. A. Cheremnykh at the Institut atomnoy energii im. I. V. Kurchatova (Institute of Atomic Energy imeni I. V. Kurchatov) and by injecting plasma clouds into a right cylinder with a three-turn coil, or by injecting them into the curvilinear section of a stellarator model. In the experiments with the preceding electron beam a fluorescent screen was used in the right cylinder (Fig. 1); in the experiments with the plasma clouds special targets were used, superficially charged by the plasma particles. If no current flows in the helical windings, the electron beam forms concentric circles on the fluorescent

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Investigation into ...

screen. As the amperage in the helical winding increases, the circles degenerate to triangles, whose sides later bend inward. The largest and smallest radii of the separatrices measured as functions of I_{hel}/H_z, and the distortions of the magnetic surfaces caused by deviations of the magnetic axis from the geometric axis, are in agreement with theoretical results. The cross sections of the plasma clouds were studied as functions of I_{hel}/H_z in clouds completely filling the cross section of the tube, and in clouds partially screened by diaphragms. In the former case two types of particles were distinguished, one type remaining trapped in the central part of the cloud bounded by a separatrix, the other escaping from the confinement region. In the second case all plasma particles remained in the confinement region if the radius of the separatrix exceeded that of the clouds, but if it was smaller the same result was obtained as in the first case. The separatrix is a function of the confining induction and of the amperage in the helical windings. This agrees with the theory. The magnetic surfaces in the curvilinear chamber of a stellarator model was studied by the same methods, yielding practically the same results with the electron beam as those obtained with the right cylinder. It is only in the

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initial stage of the discharge that the electrons escape to the copper-walls of the vacuum chamber (diameter 80 mm) which was shaped as a semi-tore (mean radius of curvature 42 cm). It is concluded that at low velocities and small densities the plasma particles move along the lines of the magnetic field. There are 8 figures.

SUBMITTED: November 29, 1961

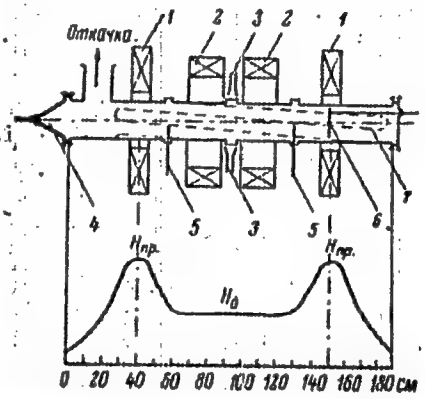

Fig. 1. Experimental arrangement (right cylinder).
Legend: (1) coils producing the magnetic mirror field; (2) coils producing the main field; (3) mouthpiece for 3-cm waves; (4) conic plasma gun; (5) electric probes; (6) fluorescent screen; (7) helical winding.

IL'YENKO, B.P.; ZYKOV, V.G.

Experimental determination of the region of magnetic surfaces bounded by a separatrix. Zhur. tekh. fiz. 31 no.11:1289-1293 N '61. (MIRA 14:11)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Electron beams) (Magnetic fields)

[redacted], S.; LADYGIN, N.; SIROY, V.G.

Chair of Physical Chemistry, Sverdlovsk State University imeni A.M. Gor'kiy

"Measuring the Capacity of the Dual Electrical Layer on Wood's Alloy." Zhur. Fiz. Khim., Vol. 17, No. 2, 1943

[redacted]

ZYKOV, V.G.

Vacuum microscales used in preparing thin targets with given thickness. Prib. i tekh. eksp. no.1:71-75 Jl-Ag '56. (MLRA 10:2)

1. Fiziko-tekhnicheskiy institut Akademii nauk USSR.
(Vacuum apparatus) (Scales (Weighing instruments))
(Nuclear physics--Measurement)

ACC NR: AT6031233 SOURCE CODE: UR/0000/65/000/000/0001/0015

AUTHOR: Zykova, A. S.; Yartsev, Ye. I.; Yefremova, G. P.; Rublevskiy, V. P.; Telushkina, Ye. L.

55
19 B+1

ORG: none

TITLE: Data on the relationship between the amount of strontium-90 and cesium-137 in the surrounding environment and the human organism

19

SOURCE: USSR. Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii. Doklady, 1965. Nekotoryye dannyye o zavistimosti mezhdu soderzhaniyem strontsiya-90 i tseziyz-137 v okruzhayushchey srede i organizme lyudey, 1-15

TOPIC TAGS: strontium, cesium, strontium 90, cesium 137, atmospheric strontium, fallout strontium, atmospheric cesium, human skeleton strontium accumulation, human skeleton cesium accumulation

ABSTRACT: Data are presented on the concentration of strontium-90 and cesium-137 in the atmosphere, in fallout, and in milk, and of strontium-90 in the human skeletal system. The data are based on long-term observations made between 1958—1964. The concentration of strontium-90 and cesium-137

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ACC NR: AT6031233

between 1962—1964 was n.10^{-17} cu/l. The mean ratio between these two isotopes was 1.4. The density of strontium-90 fallout between 1958 and 1964 fluctuated between 0.8—7.8 mcu/km^2/ year, and that of cesium-137 between 1.3—14.6 mcu/km^2/ year. The mean ratio between the two elements was 1.5. The greatest amount of cesium-137 and strontium-90 in the atmosphere and in fallout was in 1963. The greatest amount of milk contamination was also in 1963; 174 pcu/l of cesium-137 and 26.6 pcu/l of strontium-90. An analysis of bone tissue showed that the greatest concentration of strontium-90 was in children between the ages of 0—1 years, amounting to 5.9 pcu/g Ca in 1964. Annual averages showed a direct relationship between the concentration of cesium-137 and strontium-90 in the atmosphere and in fallout. The correlation between the amount of strontium-90 in milk in pcu/l and the density of strontium-90 in fallout in mcu/km^2 was 4. A preliminary analysis of the ratio between the amount of strontium-90 in the bone tissue of children in the 0—1 age group, in pcu/g Ca, and the amount of strontium-90 in milk, in pcu/g Ca, showed a value of 0.2. If nuclear tests are not resumed, the density of strontium-90 fallout in 1966 will probably be 1—1.5 mcu/km^2, and its concentration in milk will be 10—12 pcu/l. Orig. art. has: 5 tables and 8 figures. [Authors' abstract]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 007/

Card 2/2

ACC NR: AT6020410 (N) SOURCE CODE: UR/0000/65/000/000/0129/0136

AUTHOR: Il'yenko, B. P.; Lats'ko, Ye. M.; Zalkind, V. M.; Zykov, V. G.; Tolok, V. T.

ORG: none

TITLE: Investigation of plasmoids moving in a toroidal magnetic field

SOURCE: AN UkrSSR. Issledovaniye plazmennykh sgustkov (Study of plasma clusters). Kiev, Naukovo dumka, 1965, 129-136

TOPIC TAGS: plasmoid, plasma magnetic field, plasma injection, plasma gun, plasma pinch, helical magnetic field

ABSTRACT: This work reports on three experimental studies of electric fields in plasma. Electric fields arising due to polarization in plasma in 1) curved magnetic fields with varying radii of curvature, 2) in a toroidal field where two plasmoids collide and 3) in a case where a plasmoid moves along the toroidal field, are studied. The measurements were performed with two probes, one near the vessel wall and the other located at a given point in the plasma. The plasma was generated in a conical pinch gun and injected into the working region. The experiments show that polarization fields consist of the components along the toroid's major and minor radii and along the toroidal axis. Initially, the latter two components dominate in the main part of the plasmoid; subsequently, only the axial component is dominant. Plasma density was

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